



K1532
I

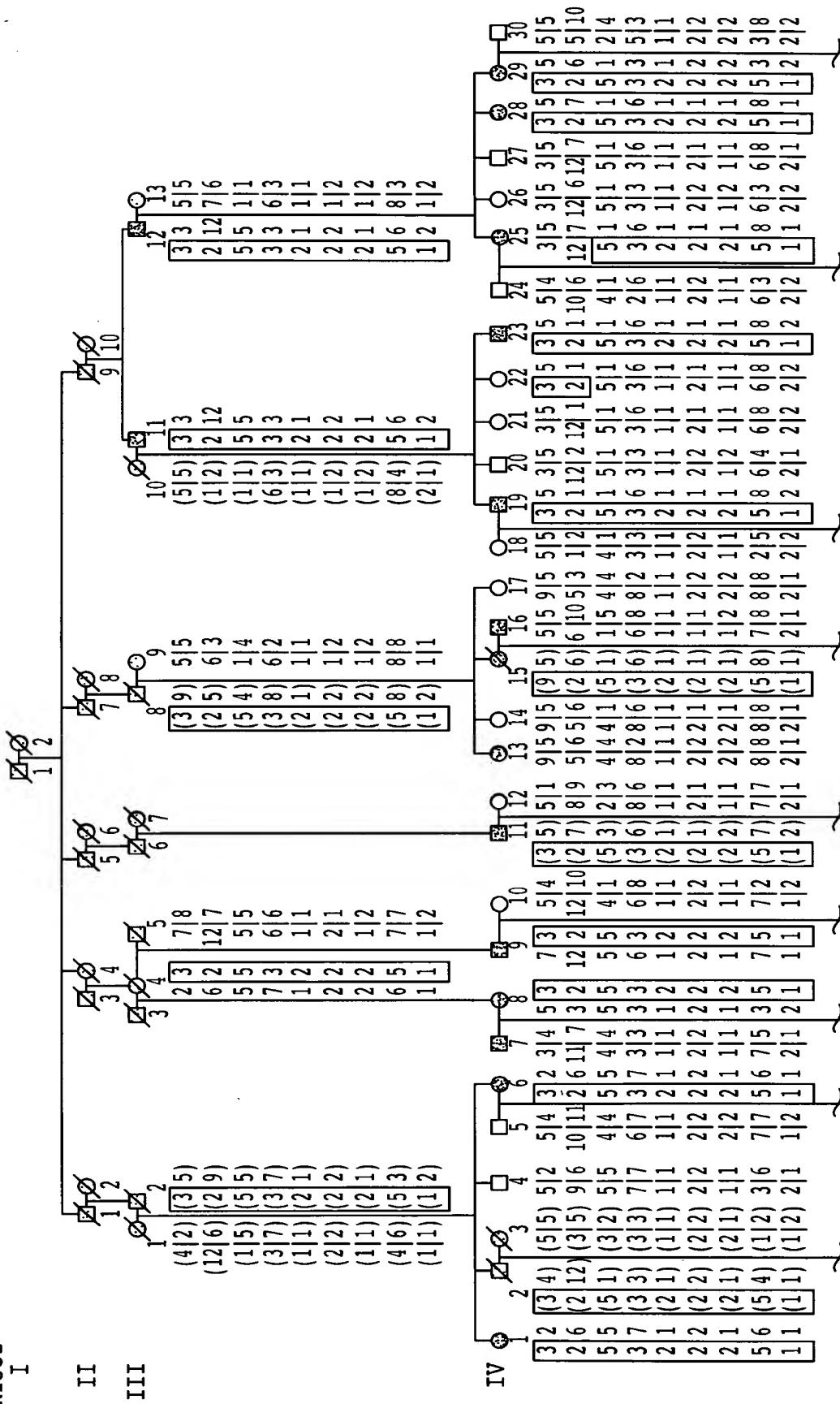


FIG. 1A



KVLQT1 - A Long QT Syndrome Gene
Mark T. KEATING et al. - Atty Ref. 2323-151
SN 09/597,732, filed 19 June 2000

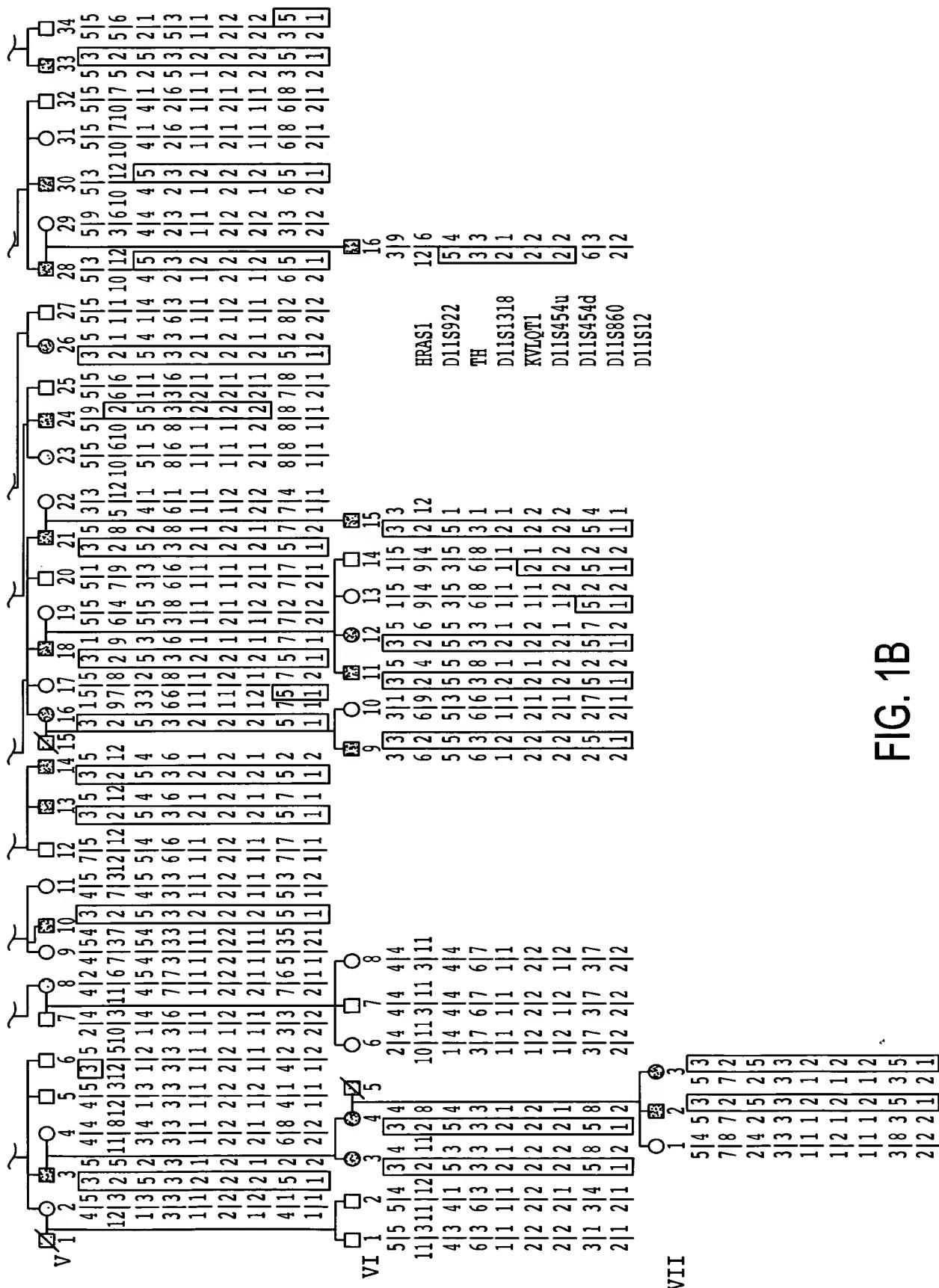


FIG. 1B



KVLQT1 - A Long QT Syndrome Gene
 Mark T. KEATING et al. - Atty. Ref. 2323-151
 SN 09/597,732, filed 19 June 2000

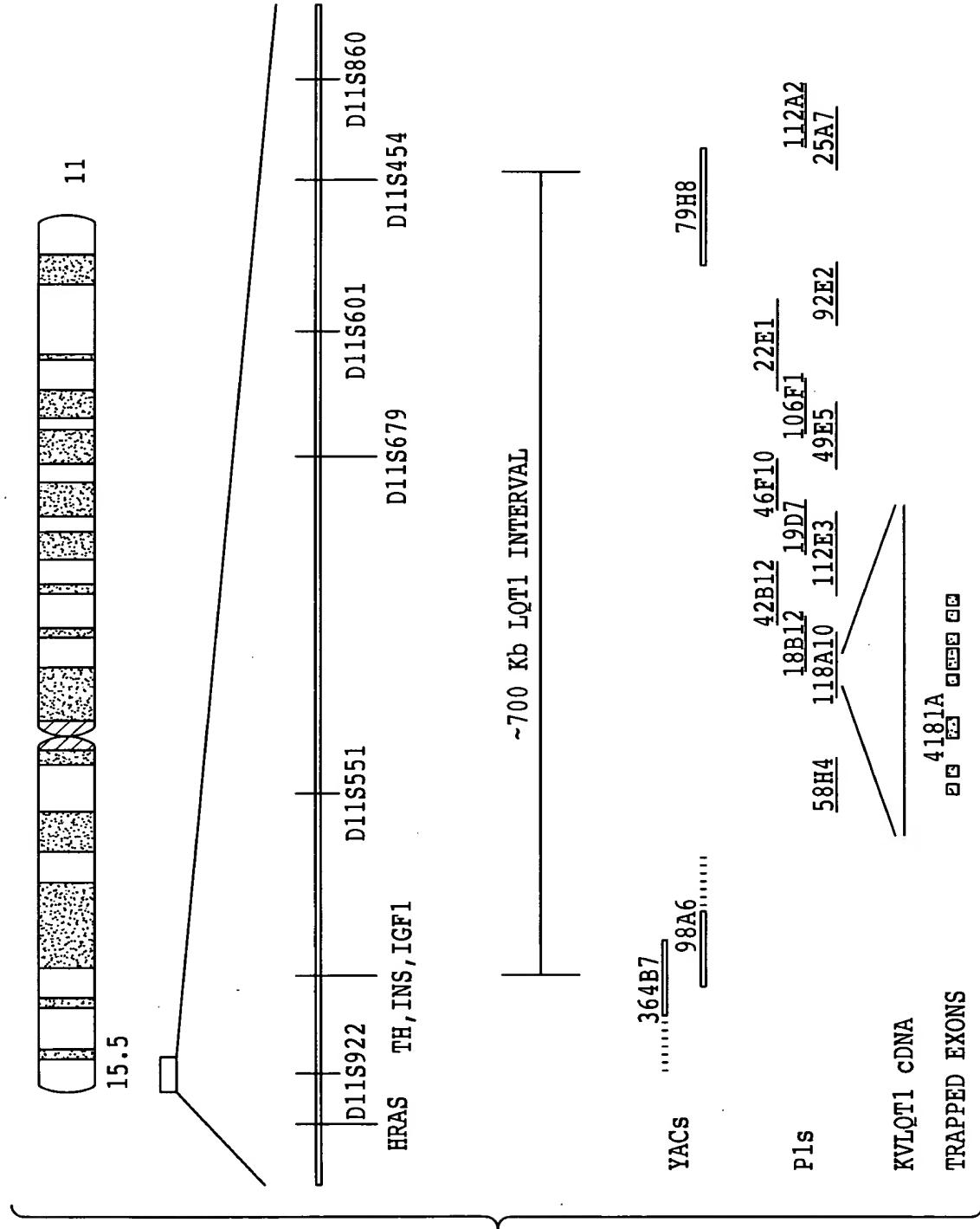


FIG. 2



KVLQT1 - A Long QT Syndrome Gene
Mark T. KEATING et al. - Atty Ref. 2323-151
SN 09/597,732, filed 19 June 2000

KVLQT1	1	FLIVLCLIFSVLSTLIEQYAAATGT.....SKGQVFAT-95
DMSHAKEL1	237	ILLISIVFCLETFIPEFHVKFNTTNGKIEEDEVPDITDPEFLLETCIWFETVREIACP.....NKLNPFCRDWVAVDIDIAIIAIPETLTATVAEEEDTNLKPAPPVSDQDKSSNQAMS1-358

2

1012

2

10

FIG. 3

4



KYLQ11 - A Long QT Syndrome Gene
Mark T. KEATING et al. - Atty Ref. 2323-151
SN 09/597,732, filed 19 June 2000

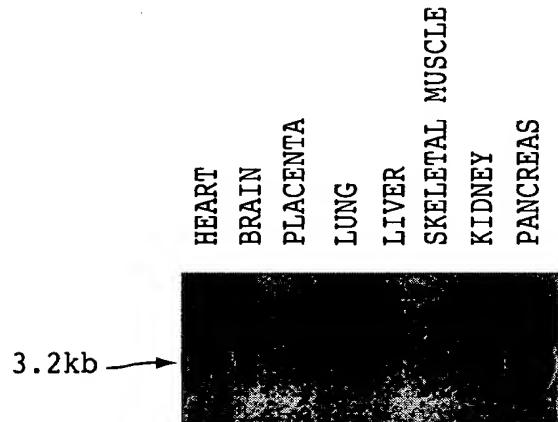


FIG. 4



CTGCCCCCTCCGGCCCCGGCCCGAGCGCCGGGCTGGGCCGGCAGCGGCCCCCGCGGGGGCTGGCAGCAGTGGCTGCC-81
 CGCACTGCGCCGGGGCCTCGCCTCGCTGCAGCTCCCGGTGCCGGCCTCGGGCCGGCCCCCGCAGGCCCTCCTCGTT-162
 ATGGCCGCGGCCCTCCTCCCGGCCAGGGCCAGAGGAAGGAGCTGGGGTGGGGCCCTGCCAGGGCGCCGGCAGC-243
 M A A A S S P P R A E R K R W G W G R L P G A R R G S -27
 GCGGGCCCTGGCCAAGAAGTGCCCCCTCTCGCTGGAGCTGGCGAGGGCGGCCGGCGCGCTCACCGCCCAC-324
 A G L A K K C P F S L E L A E G G P A G G G A L Y A P I -54
 GCGCCCGGCCGCCAGGTCCCGGCCCTCGCTCCCGGCCGCCGCCGCCAGTTGCCCTCCGACCTTGGCCCC-405
 A P G A P G P A P P A S P A A P A A P P V A S D L G P -81
 CGGCCGCCGGTGAGCTAGACCCGGCGCTCTACAGCACGCCGCCGGTGTGGCGCGCACCCACGTCCAGGGC-486
 R P P V S L D P R V S I Y S T R R P V L A R T H V Q G -108
 ▼
 CGCGTCTACAACCTCCCTCGAGCGTCCCACCGGCTGGAAATGCTTCGTTACCACTTCGCCGTCTCCTCATCGTCTGGTC-567
 R V Y N F L E R P T G W K C F V Y H F A V F L I V L V -135
 ▼ S1
 TGCCTCATCTCAGCGTGCTGTCCACCATCGAGCAGTATGCCGCCCTGGCCACGGGACTCTCTCTGGATGGAGATCGTG-648
 C L I F S V L S T I E Q Y A A L A T G T L F W M E I V -162
 S2
 CTGGTGGTGTCTCGGGACGGAGTACGTGGTCCGCCCTGGTCCGCCCTGGCCAGCAAGTACGTGGCCTCTGGCTGGC-729
 L V V F F G T E Y V V R L W S A G C R S K Y V G L W G -189
 ▼
 CGCCTGCCCTTGCCCCGAAGCCCATTCCATCATCGACCTCATCGTGGCTGGCCCTCCATGGTGGCTCTGGCTGGC-810
 R L R F A R K P I S I I D L I V V V A S M V V L C V G -216
 ▼ S3
 TCCAAGGGCAGGTGTTGCCACGTCGGCATCGAGGAGTACACGTGGCTACACGTGGCTGGAGATGCTACACGTGACCGC-891
 S K G Q V F A T S A I R G I R F L O I L R M L H V D R -243
 ▼ S4
 CAGGGAGGCACCTGGAGGCTCTGGCTCCGTGGCTTCATCCACCGCCAGGAGCTGATAACCACCCGTACATGGCTTC-972
 Q G G T W R L L G S V V F I H R Q E L I T T L Y I G F -270
 ▼
 CTGGGCCTCATCTCCTCGTACTTGTGTACCTGGCTGAGAAGGACGGTGAACGAGTCAGGCCGCGTGGAGTTGGC-1053
 L G L I F S S Y F V Y L A E K D A V N E S G R V E F G -297
 ▼ S5
 AGCTACGCAGATGCGCTGTGGTGGGGGGTGGTCACAGTCACCAACATCGCTATGGGACAAGGTGCCAGACGTGGTC-1134
 S Y A D A L W W G V V T V T T I G Y G D K V P Q T W V -324
 ▼ Pore
 GGGAAAGACCATGCCCTCTGCTCTGTCTTGCCATCTCCTCTGGCTCCAGGGGGATTCTGGCTGGGGTTT-1215
 G K T I A S C F S V F A I S F F A L P A G I L G S G F -351
 ▼ S6
 GCCCTGAAGGTGCAGCAGAAGCAGAGGAGCAGACTTCAACCGCAGATCCGGCGGGCAGCCTCACTCATTGACACCGCA-1296
 A L K V Q Q K Q R Q K H F N R Q I P A A A S L I Q T A -378
 ▼
 TGGAGGTGCTATGCTGCCGAGAACCCGACTCCTCACCTGGAAAGATCTACATCCGAAGGCCCCCGGAGCCACACTCTG-1377
 W R C Y A A E N P D S S T W K I Y I R K A P R S H T L -405
 ▼
 CTGTCACCCAGCCCCAACCAAGAAGTCTGGTGGTAAAGAAAAAAAGTTCAAGCTGGACAAAGACAATGGGTGACT-1458
 L S P S P K P K K S V V V K K K F K L D K D N G V T -432
 ▼
 CCTGGAGAGAAGATGCTCACAGTCCCCATATCACGTGCGACCCCCAGAAGAGCGGGCTGGACCACTCTCTGTCGAC-1539
 P G E K M L T V P H I T C D P P E E R R L D H F S V D -459
 ▼
 GGCTATGACAGTTCTGTAAGGAAGAGCCCAACACTGCTGGAAAGTGAGCATGCCCATTCATGAGAACCAACAGCTTCGCC-1620
 G Y D S S V R K S P T L L E V S M P H F M R T N S F A -486
 ▼
 GAGGACCTGGACCTGGAGGGGAGACTCTGCTGACACCCATCACAGCTGCCGGAACACCACCGAC-1701
 E D L D L E G E T L L T P I T H I S Q L R E H H R A T -513
 ▼
 ATTAAGGTCAATTGACGCATGCAGTACTTGTGGCAAGAAGAAATTCCAGCAAGCGCGGAAGCCTTACGATGTGGGGAC-1782
 I K V I R R M Q Y F V A K K K F Q Q A R K P Y D V R D -540
 ▼
 GTCATTGAGCAGTACTCGCAGGGCACCTCAACCTCATGGTGGCATCAAGGAGCTGCAGAGGGCTGGACCAAGTCCATT-1863
 V I E Q Y S Q G H L N L M V R I K E L Q R R L D Q S I -567

FIG. 5A



KVLQT1 - A Long QT Syndrome Gene
Mark T. KEATING et al. - Atty. Ref. 2323-151
SN 09/597,732, filed 19 June 2000

GGGAAGCCCTCACTGTTATCTCCGTCAGAAAAGAGCAAGGATCGCGCAGCAACACGATCGGCGCCGCCGA-1944
G K P S L F I S V S E K S K D R G S N T I G A R L N R -594

▼
GTAGAAGACAAGGTGACGCAGCTGGACCAGAGGCTGGCACTCATCACCGACATGCTTACCAAGCTGCTCTCCCTGACGGT-2025
V E D K V T Q L D Q R L A L I T D M L H Q L L S L H G -621
GGCAGCACCCCCCGCAGCGCGGGCCCCCAGAGAGGGCGGGGCCACATCACCCAGCCCTGCGGAGTGGCGCTCCGTC-2106
G S T P G S G G P P R E G G A H I T Q P C G S G G S V -648
GACCCCTGAGCTTCTGCCCCAGCAACACCCCTGCCCACCTACGAGCAGCTGACCGTGGCCAGGAGGGGCCCGATGAGGG-2187
D P E L F L P S N T L P T Y E Q L T V P R R G P D E G -675
TCCTGAGGAGGGGATGGGCTGGGGATGGGCCTGAGTGAGGAGGGGAGGCCAAGAGTGGCCCCACCTGGCCCTCTGAAG-2268
S * -676
GAGGCCACCTCCTAAAAGGCCAGAGAGAAGAGCCCCACTCTCAGAGGCCCAATACCCATGGACCATGCTGCTGGCAC-2349
AGCTGCACTTGGGGGCTCAGCAAGGCCACCTCTTCCCTGCCCGTGTGGGGGCCCTCAGGCTTGAGTTGTTACCCA-2430
AGGCCCTGGCCCCACATGGTGTGACATCTGGCATGGTGTGGGCCAGTGGCAGGGCACAGGGCTGGCC-2511
ATGTATGCCAGGAAGTAGCACAGGCTGAGTGCAGGCCACCCCTGCTGGCCAGGGGGCTCTGAGGGAGACAGAGCA-2592
ACCCCTGGACCCCAGCCTCAAATCAGGACCTGCCCAGGCCACAGGGCAGGACAGGCCACTGTGACTACAGGGCAC-2673
CGGCAATAAAAGGCCAGGAGGCCATTGGAGGGCTGGGCTGGCTCCACTCTCAGGAAATGCTGACCATGGGAGG-2754
AGACTGTTGAGACTGCTCTGAGCCCCCAGCTTCCAGCAGGAGGGACAGTCTCACCATTTCCCAAGGGCACGTGGTTGAGT-2835
GGGGGGAAACGCCACTTCCCTGGGTTAGACTGCCAGCTTCTAGCTGGAGAGGGAGGCCCTGCCCTCTGGCCCTGAGGCC-2916
ACTGTGCGTGGGGCTCCGCCCTCCAACCCCTGCCAGTCCAGCAGCCAGCCAAACACAGAAGGGGACTGCCACCTCC-2997
CCTTGCCAGCTGCTGAGGCCAGAGAAGTGACGGTTCTACACAGGACAGGGGTTCTCTGGGATTACATCGCATAGAA-3078
ATCAATAATTGTTGTTGAGGATCTGTTAATGAGTTACAGTGTGATTGATTAAATTGTGCAAGCTTTTC-3159
CTAATAAACGTGGAGAACAC(A)n -3180

FIG. 5B



KVLQ11 - A Long Q1 Synurome Gene
 Mark T. KEATING et al. - Atty Ref. 2323-151
 SN 09/597,732, filed 19 June 2000

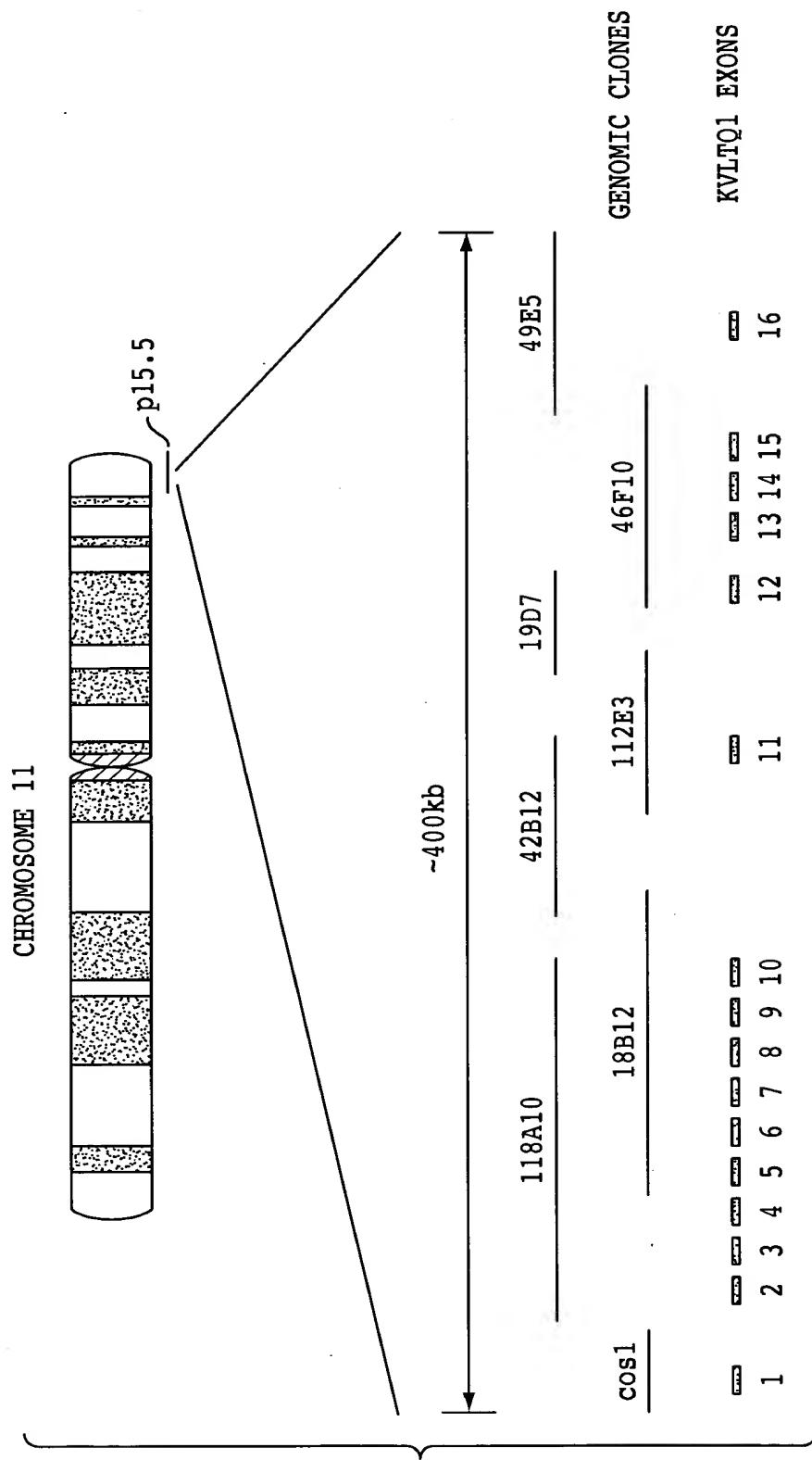


FIG. 6



KVLQT1 - A Long QT Syndrome Gene
Mark T. KEATING et al. - Atty. Ref. 2323-151
SN 09/597,732, filed 19 June 2000

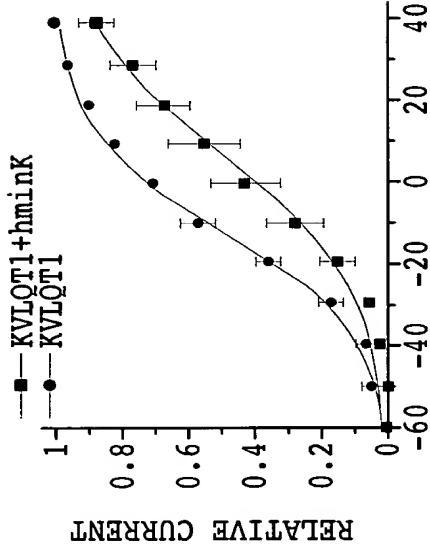


FIG. 7B

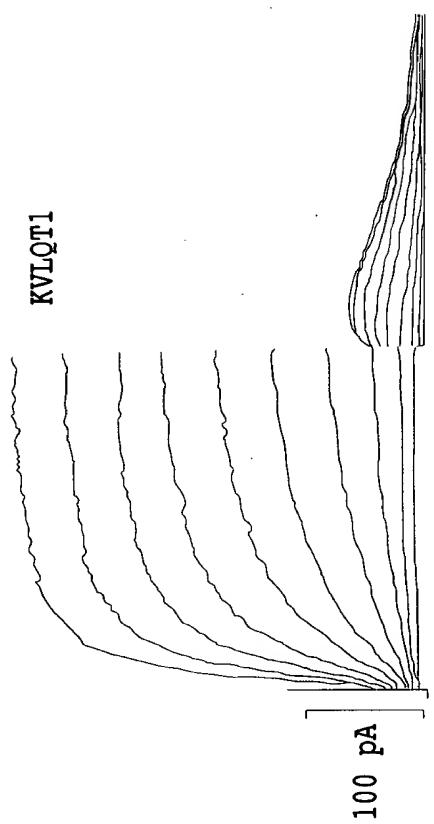


FIG. 7A

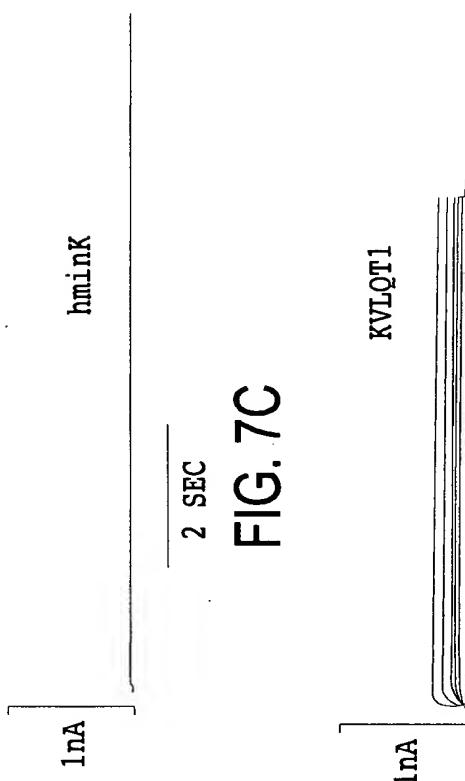


FIG. 7C

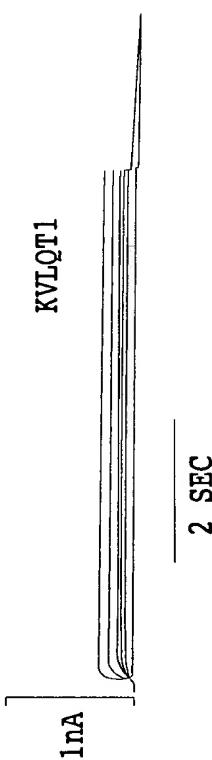


FIG. 7D

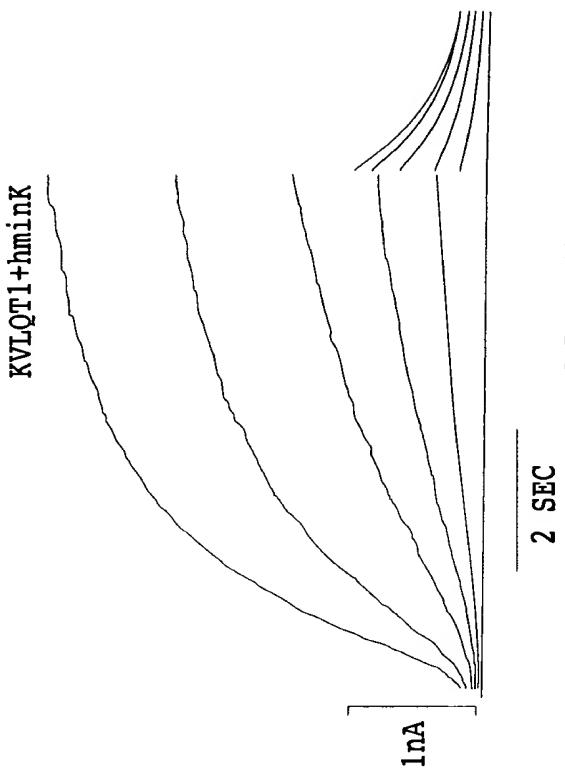


FIG. 7E



KVLQT1 - A Long QT Syndrome Gene
 Mark T. KEATING et al. - Atty Ref. 2323-151
 SN 09/597,732, filed 19 June 2000

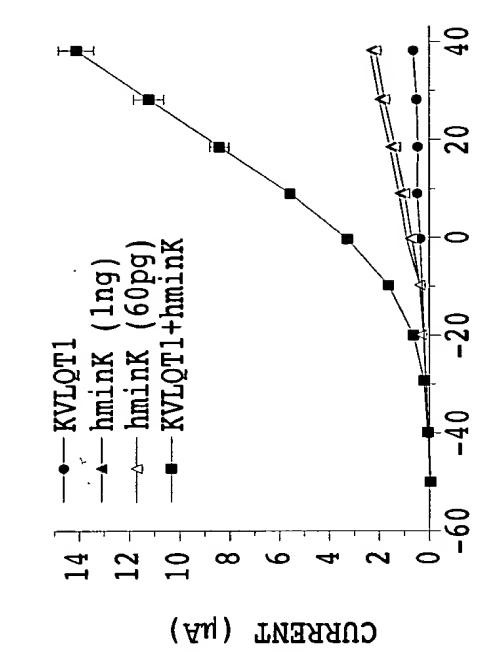


FIG. 9D

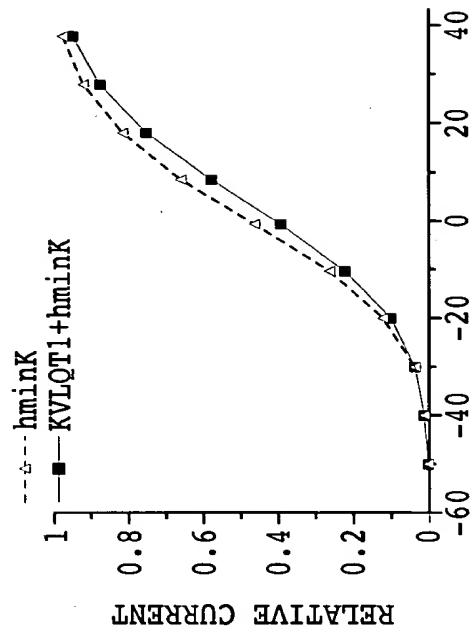


FIG. 9E

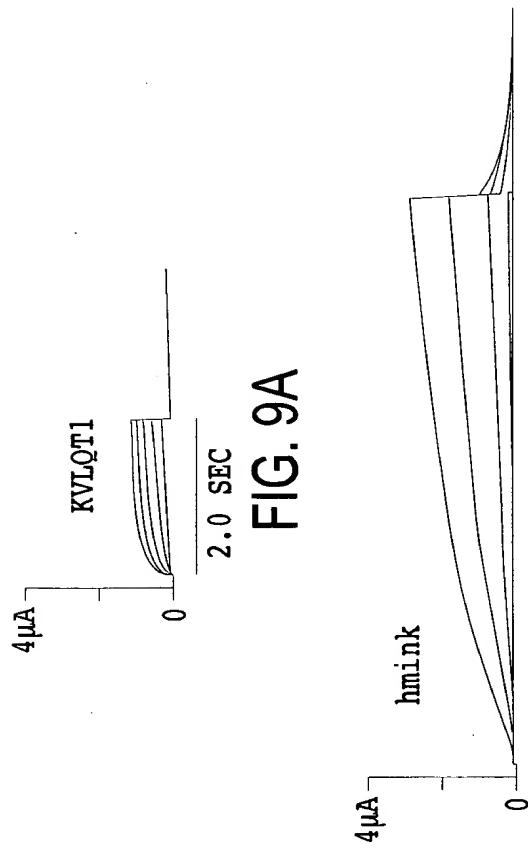


FIG. 9A

FIG. 9B

FIG. 9C

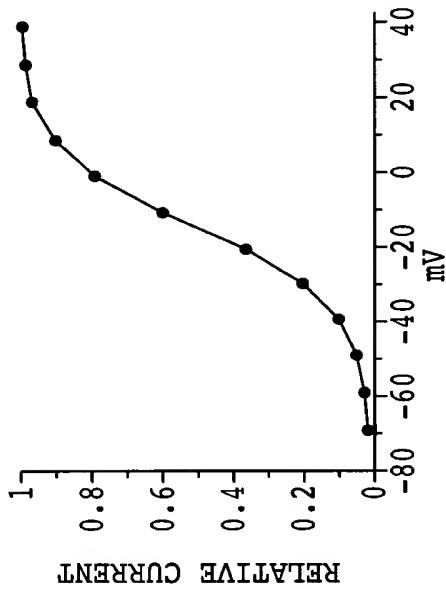


FIG. 8B

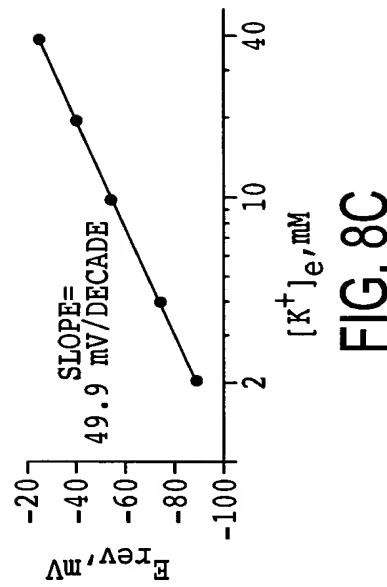


FIG. 8C

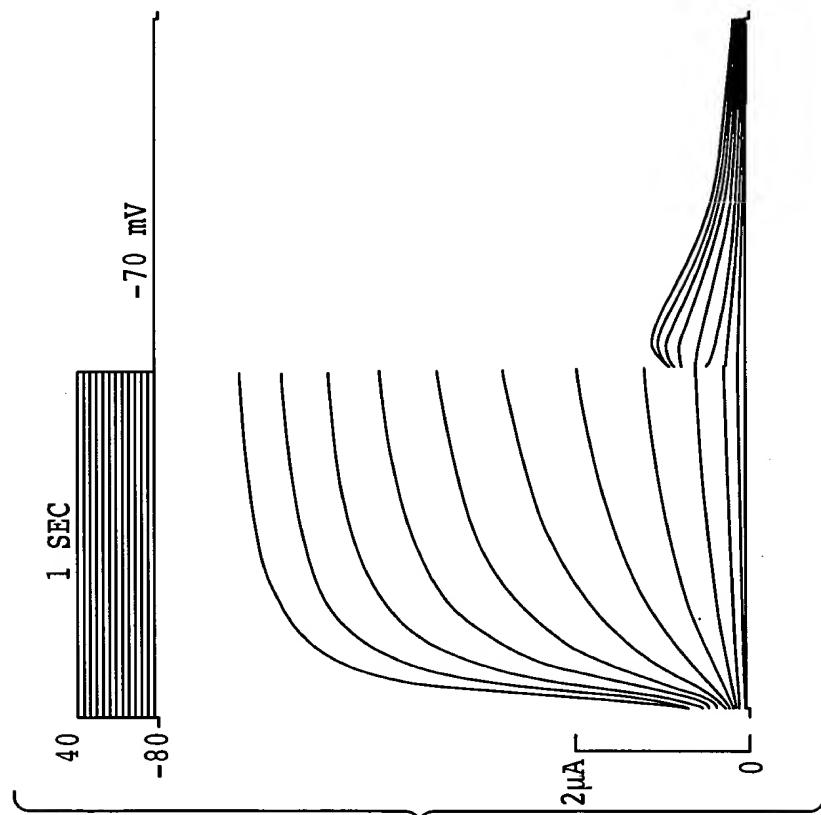


FIG. 8A



KVLQT1 - A Long QT Syndrome Gene
 Mark T. KEATING et al. - Atty. Ref. 2323-151
 SN 09/597,732, filed 19 June 2000

XENOPUS

MNENA
AINS
LYEAIPLP
QDGSS
NGQRQEDRQ
ANSFELK
RETLVATD
PPRPT

HUMAN QGRVYNFLERPTGKCFVYHFAVFLIVL
 ||||||| ||||||| ||||||| ||||||| |||

XENOPUS INLDPRVSIYSGRRPLFSRTNIQGRVYNFLERPTGKCFVYHFTVFLIVL

HUMAN S1 VCLIFSVLSTIEQYAALATGTLFWMEIVLVVFFGTEYVVRLWSAGCRSKY
 ||||||| ||| ||| ||||||| ||||||| ||||||| ||||||| |||

XENOPUS ICLIFSVLSTIQQYNNLATETLFWMEIVLVVFFGAEYVVRLWSAGCRSKY

HUMAN VGLWGRRLRFARKPISIIDLIVVVASMVLCVGSKGQVFATSAIRGIRFLQ
 | ||||||| ||| ||||||| ||||||| ||| ||| ||||||| |||

XENOPUS VGVWGRRLRFARKPISVIDLIVVVASVIVLCVGSNGQVFATSAIRGIRFLQ

HUMAN ILRMLHVDRQGGTWRLLGSSVVFIRQELITTLIGFLGLIFSSYFVYLAE
 ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| |||

XENOPUS ILRMLHVDRQGGTWRLLGSSVVFIRQELITTLIGFLGLIFSSYFVYLAE

HUMAN KDAVNESGRVEFGSYADALWWGVVTVTIGYGDKVPTWVGKTIASCFSV
 ||| ||| ||||||| ||||||| ||||||| ||||||| ||||||| |||

XENOPUS KDAIDSSGEYQFGSYADALWWGVVTVTIGYGDKVPTWIGKTIASCFSV

HUMAN S6 FAISFFALPAGILGSGFALKVQQKQRQKHFNRQIPAAASLIQTAWRCYAA
 ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| |||

XENOPUS FAISFFALPAGILGSGFALKVQQKQRQKHFNRQIPAAASLIQTAWRCYAA

HUMAN ENPDSSTWKIYIRKAPRSHTLLSPSPKPKSVVVKKKFKLDKDNGVTPG
 ||||| ||||||| ||| |||

XENOPUS ENPDSATWKIYIRKQSRNHHIMSPSP

HUMAN EKMLTVPHITCDPPEERRLDHFSVDGYDSSVRKSPTLLEVSMPHFMRTNS

HUMAN FAEDLDLEGETLLTPITHISQLREHHRATIKVIRRMQYFVAKKKFQQARK

HUMAN PYDVRDVIEQYSQGHLNLMRVIKELQRRLDQSIGKPSLFISVSEKSKDRG

HUMAN SNTIGARLNRVEDKVTQDQRLALITDMLHQLLSLHGGSTPGSGGPPREG

HUMAN GAHITQPCGSGGSVDPFLPSNTLPTYEQLTVPRRGPDREGS

FIG. 10

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KVLQ11 - A Long QT Syndrome Gene
 Mark T. KEATING et al. - Atty Ref. 2323-151
 SN 09/597,732, filed 19 June 2000

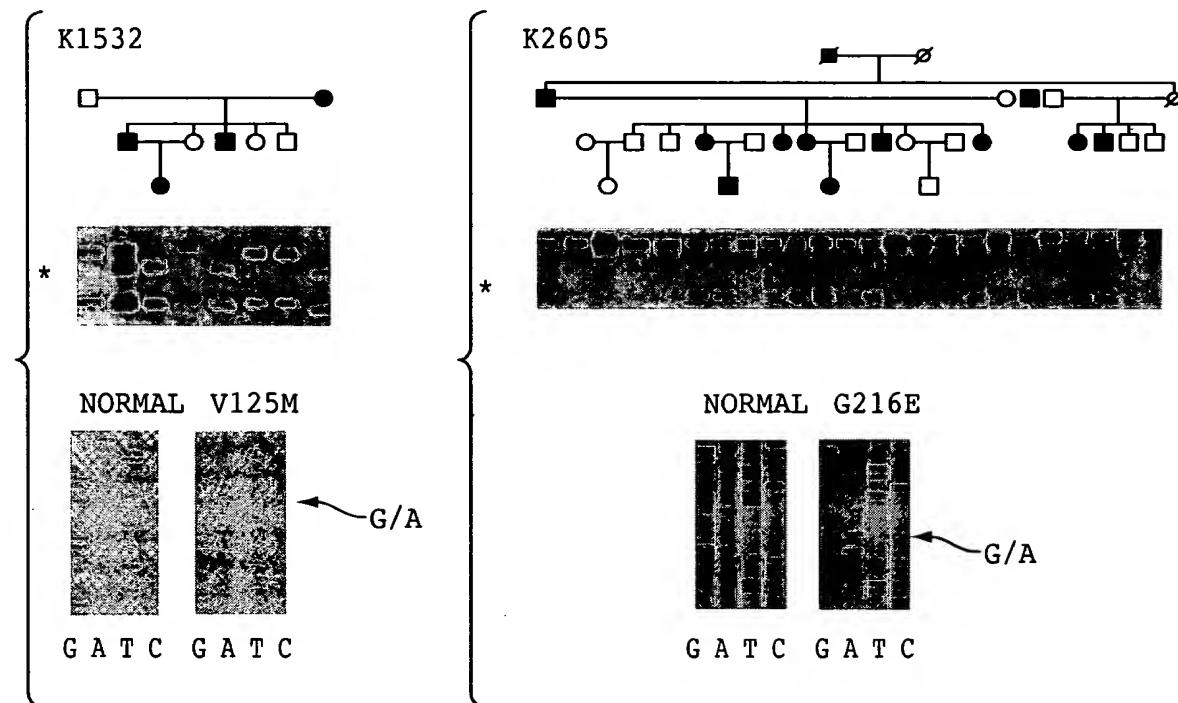


FIG. 11A

FIG. 11B

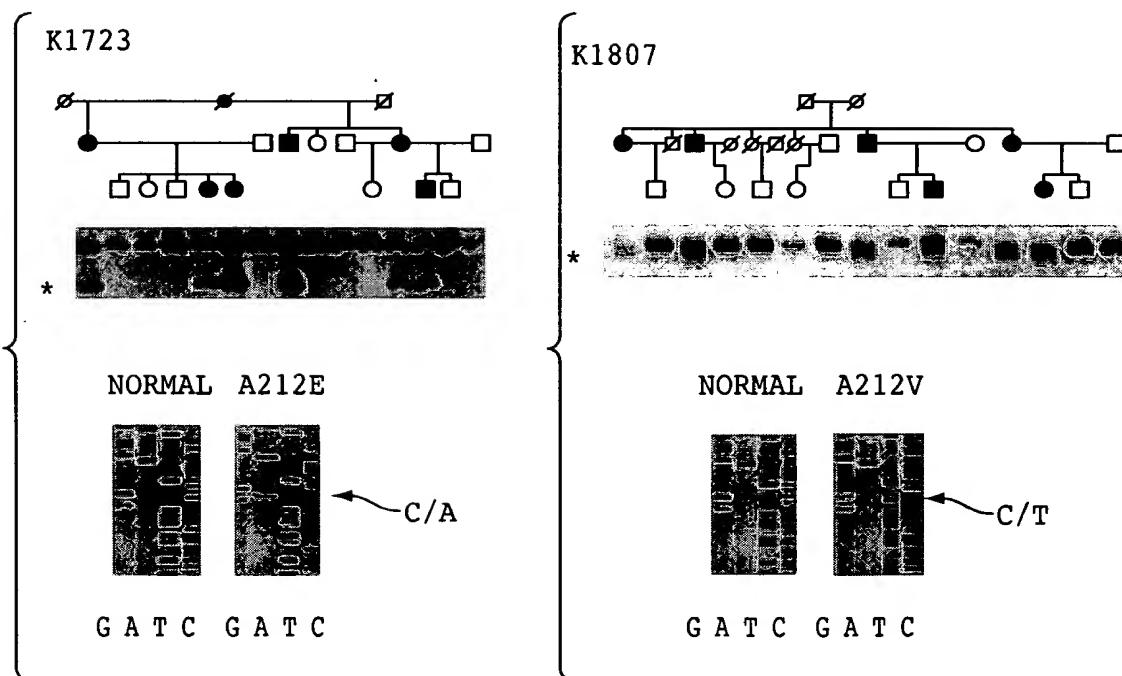


FIG. 11C

FIG. 11D



KVLQT1 - A Long QT Syndrome Gene
 Mark T. KEATING et al. - Atty. Ref. 2323-151
 SN 09/597,732, filed 19 June 2000

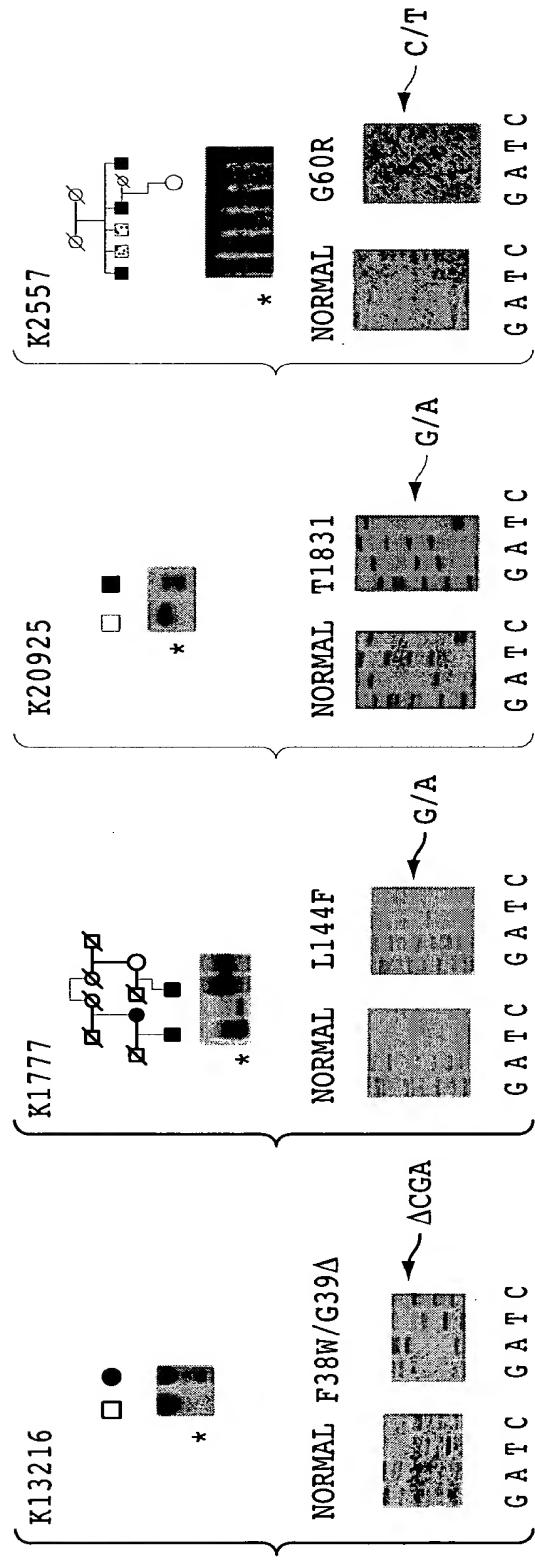


FIG. 12A

FIG. 12B

FIG. 12C

FIG. 12D



KVLQT1 - A Long QT Syndrome Gene
 Mark T. KEATING et al. - Atty Ref. 2323-151
 SN 09/597,732, filed 19 June 2000

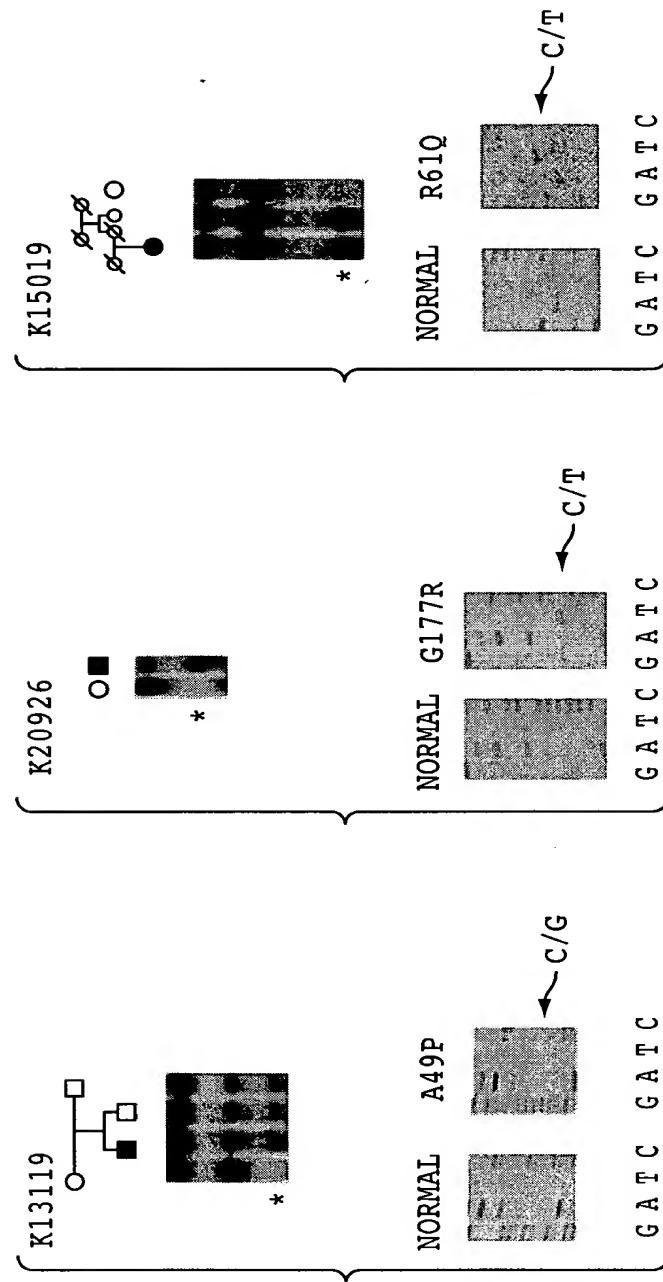


FIG. 12E

FIG. 12F

FIG. 12G



KVLQT1 - A Long QT Syndrome Gene
 Mark T. KEATING et al. - Atty. Ref. 2323-151
 SN 09/597,732, filed 19 June 2000

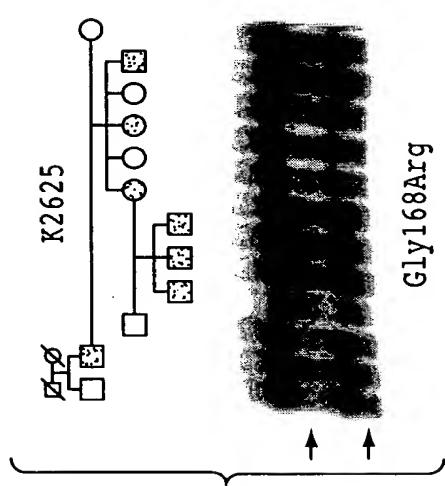


FIG. 12H

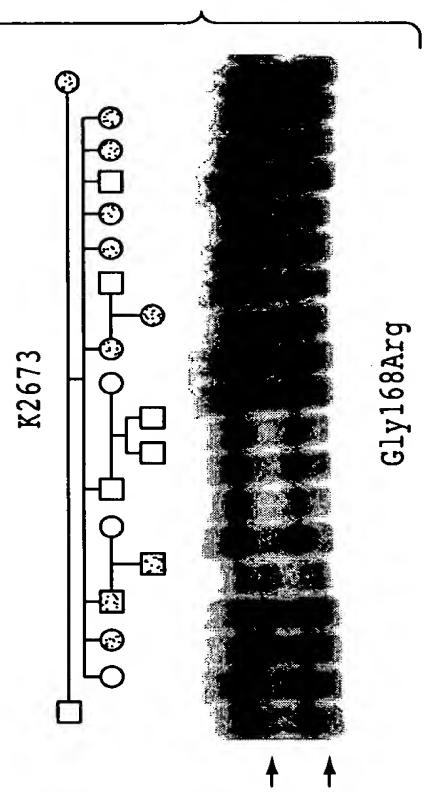


FIG. 12I

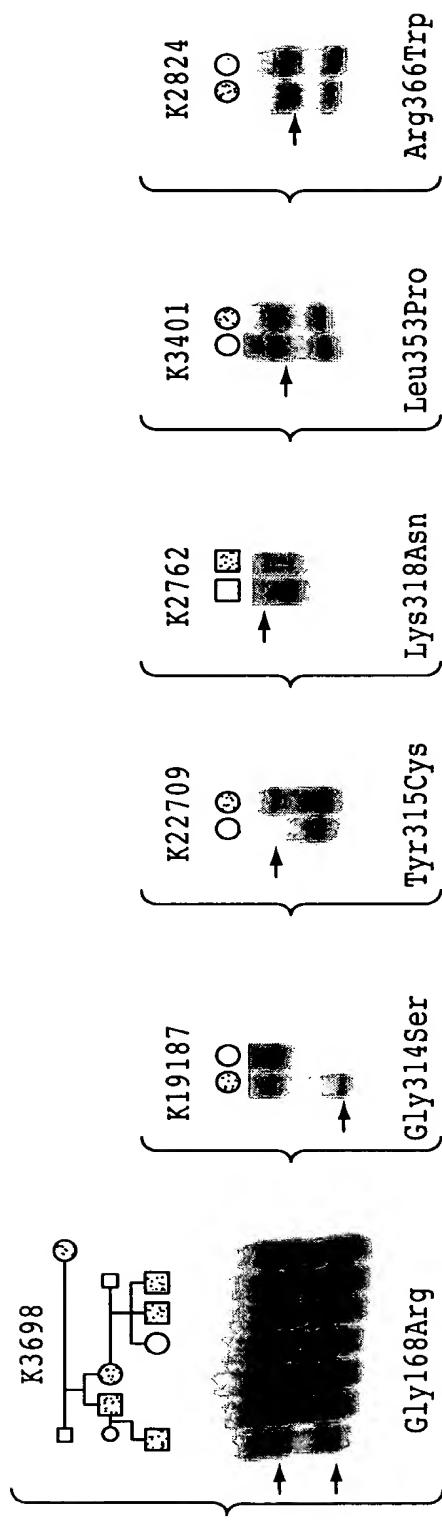
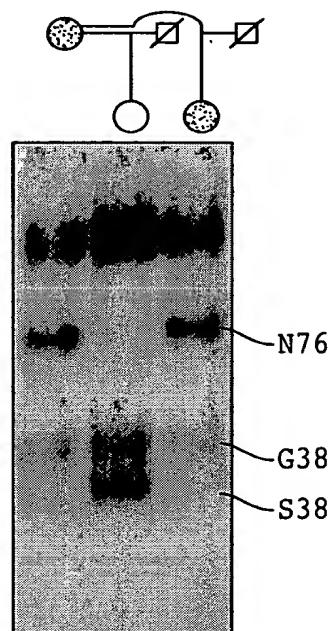


FIG. 12J **FIG. 12K** **FIG. 12L** **FIG. 12M** **FIG. 12N** **FIG. 12O**



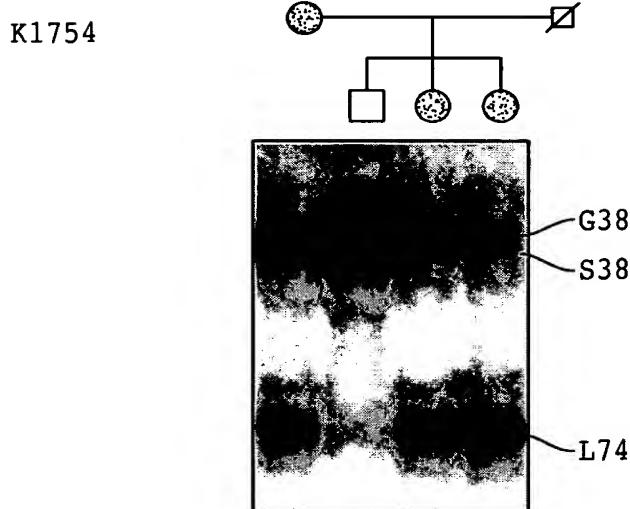
KVLQT1 - A Long QT Syndrome Gene
Mark T. KEATING et al. - Atty Ref. 2323-151
SN 09/597,732, filed 19 June 2000

K1789



NORMAL	CAC	TCG	AAC	GAC	CCA	TTC	AAC
	H	S	N	D	P	F	N
MUTANT	CAC	TCG	AAC	AAC	CCA	TTC	AAC
	H	S	N	N	P	F	N

FIG. 13A



NORMAL	CTG	GAG	CAC	TCG	AAC	GAC	CCA
	L	E	H	S	N	D	P
MUTANT	CTG	GAG	CAC	TTG	AAC	GAC	CCA
	L	E	H	L	N	D	P

FIG. 13B

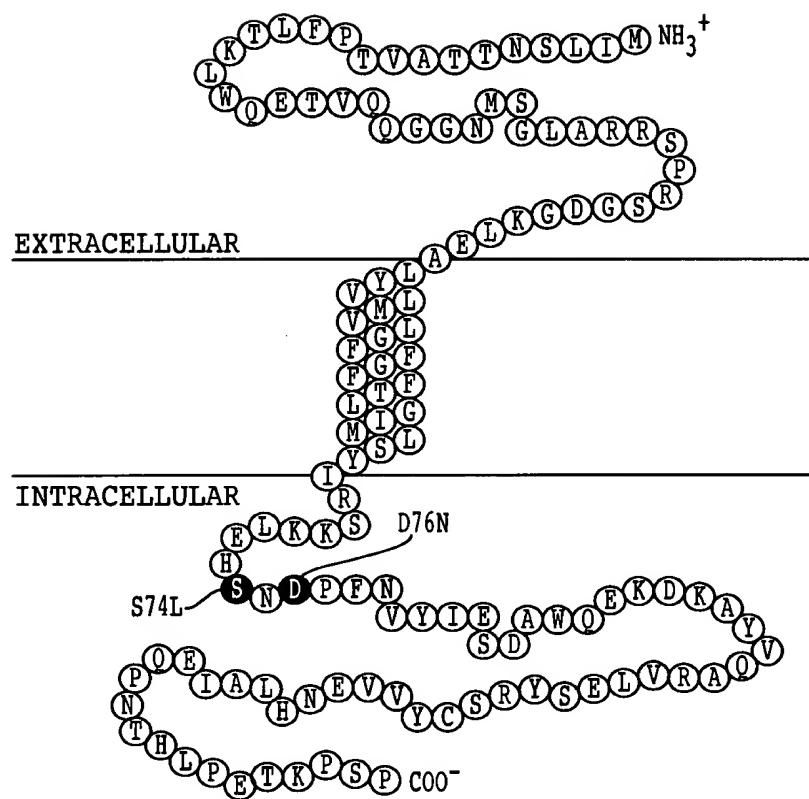


FIG. 13C

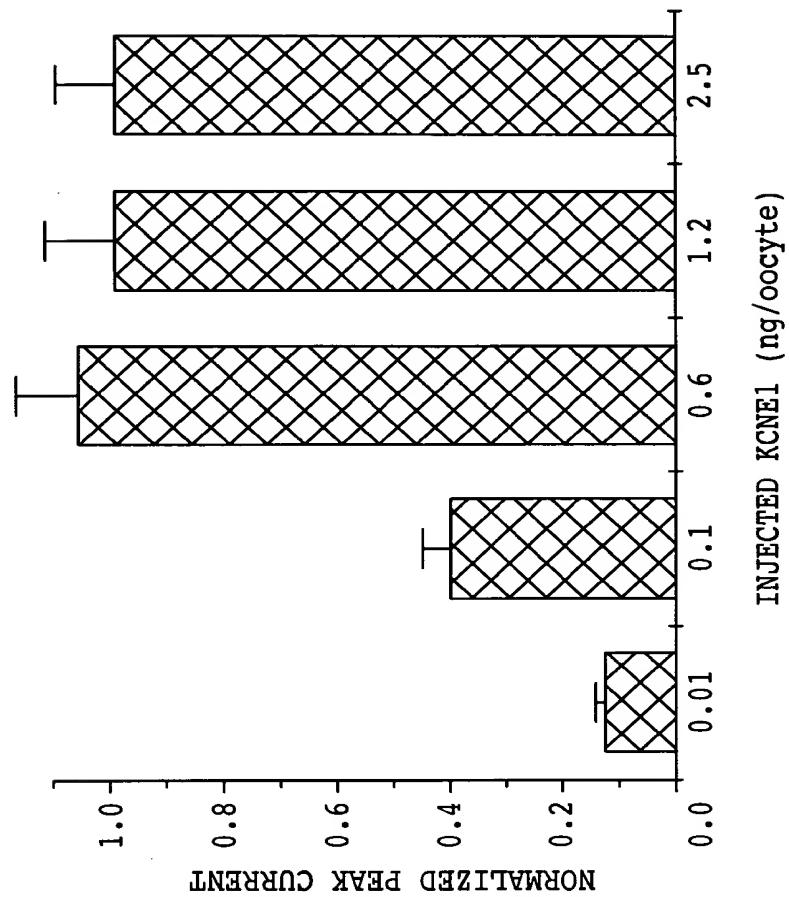


FIG. 14B

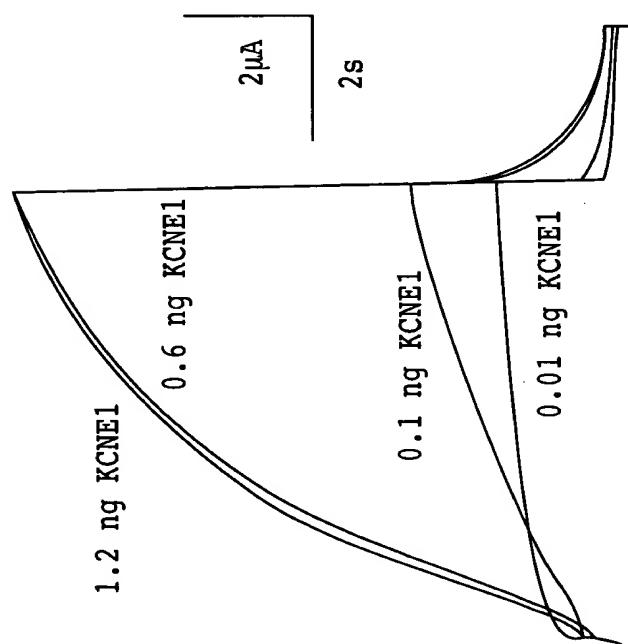


FIG. 14A

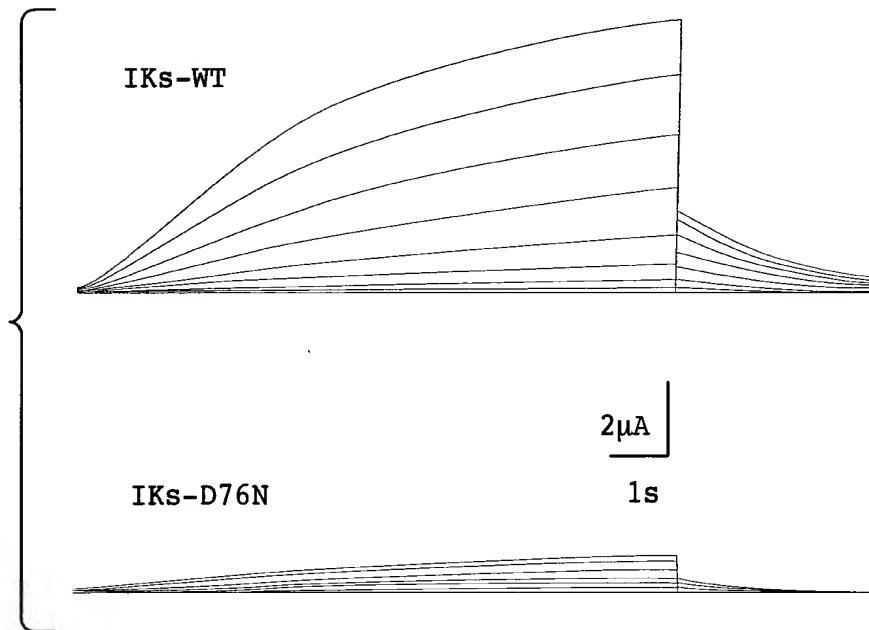


FIG. 15A

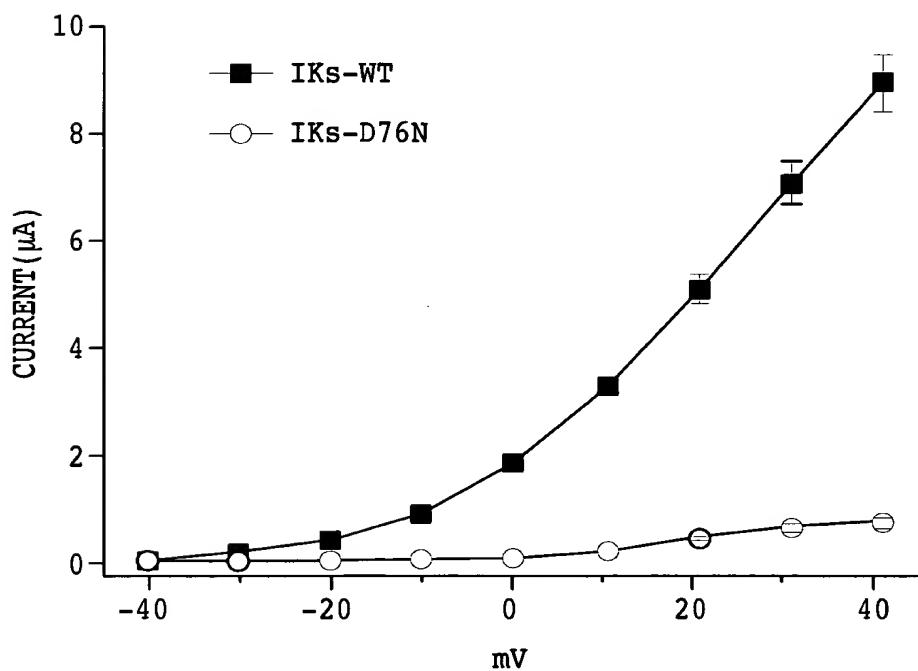


FIG. 15B



KVLQT1 - A Long QT Syndrome Gene
Mark T. KEATING et al. - Atty Ref. 2323-151
SN 09/597,732, filed 19 June 2000

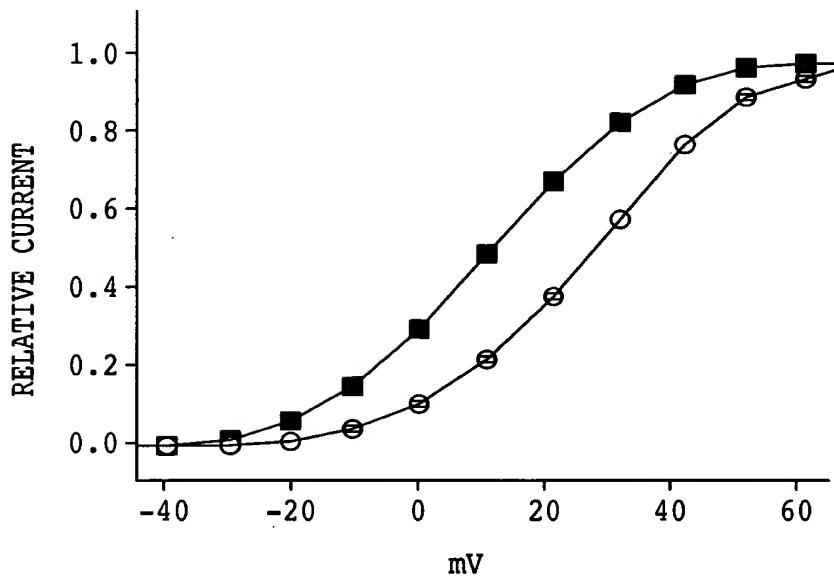


FIG. 15C

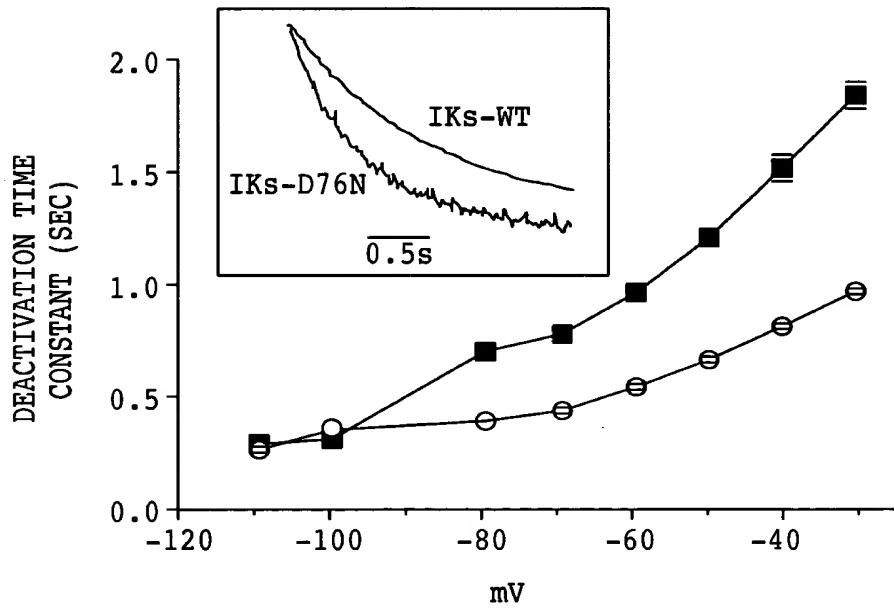


FIG. 15D

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KVLQT1 - A Long QT Syndrome Gene
Mark T. KEATING et al. - Atty. Ref. 2323-151
SN 09/597,732, filed 19 June 2000

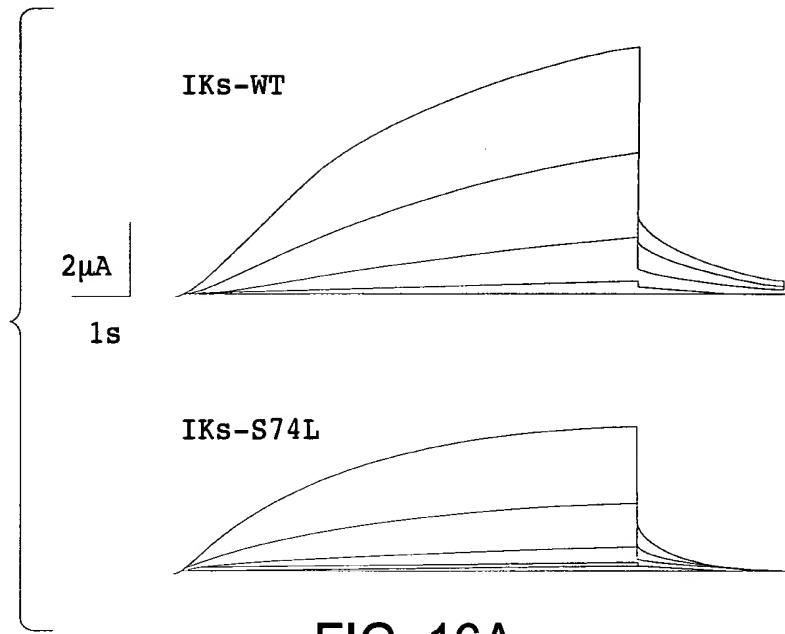


FIG. 16A

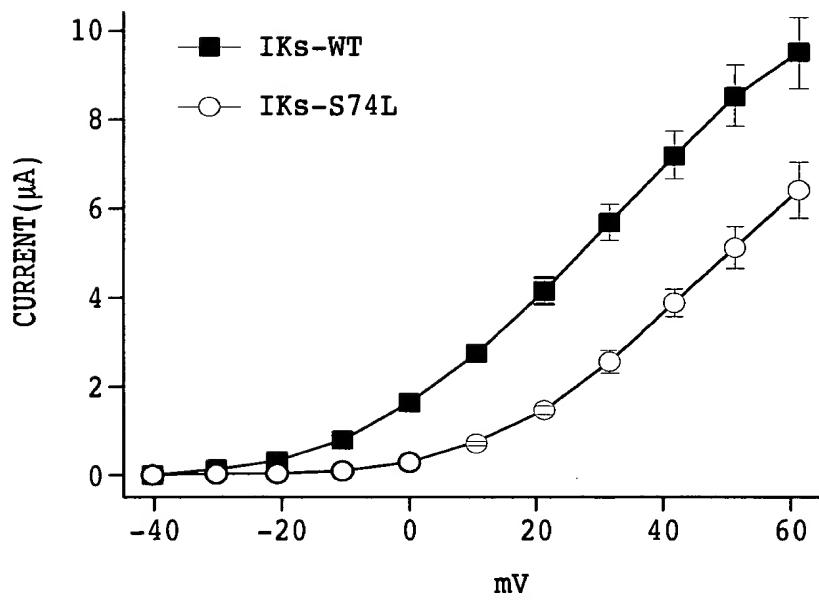


FIG. 16B



KVLQT1 - A Long QT Syndrome Gene
Mark T. KEATING et al. - Atty. Ref. 2323-151
SN 09/597,732, filed 19 June 2000

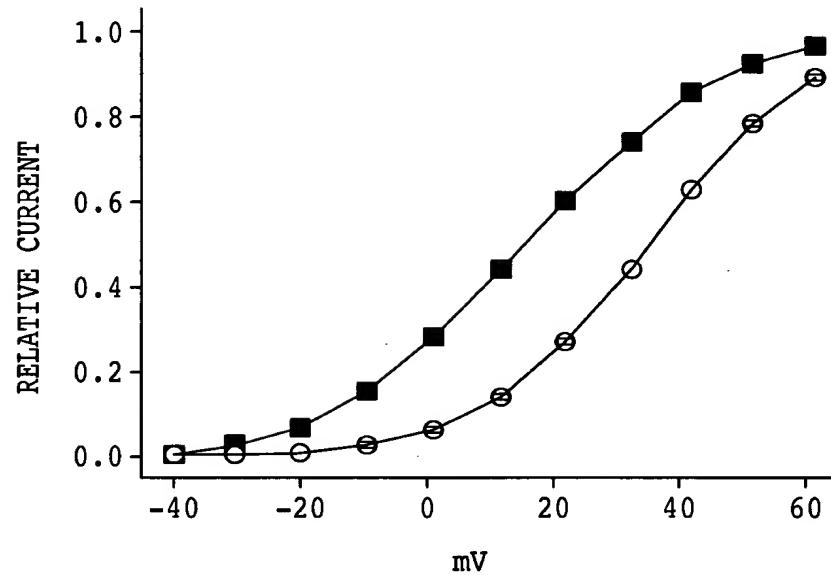


FIG. 16C

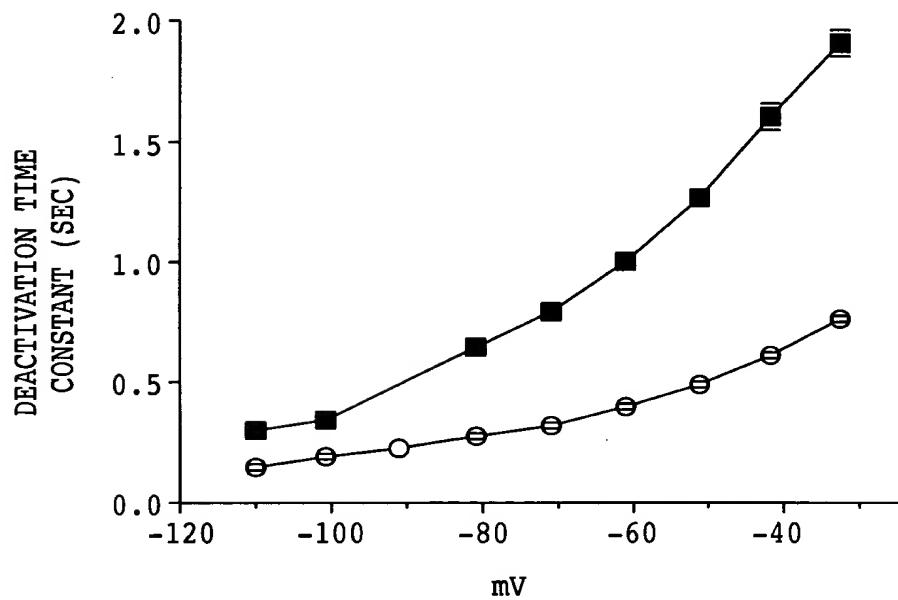


FIG. 16D



KVLQT1 - A Long QT Syndrome Gene
Mark T. KEATING et al. - Atty Ref. 2323-151
SN 09/597,732, filed 19 June 2000

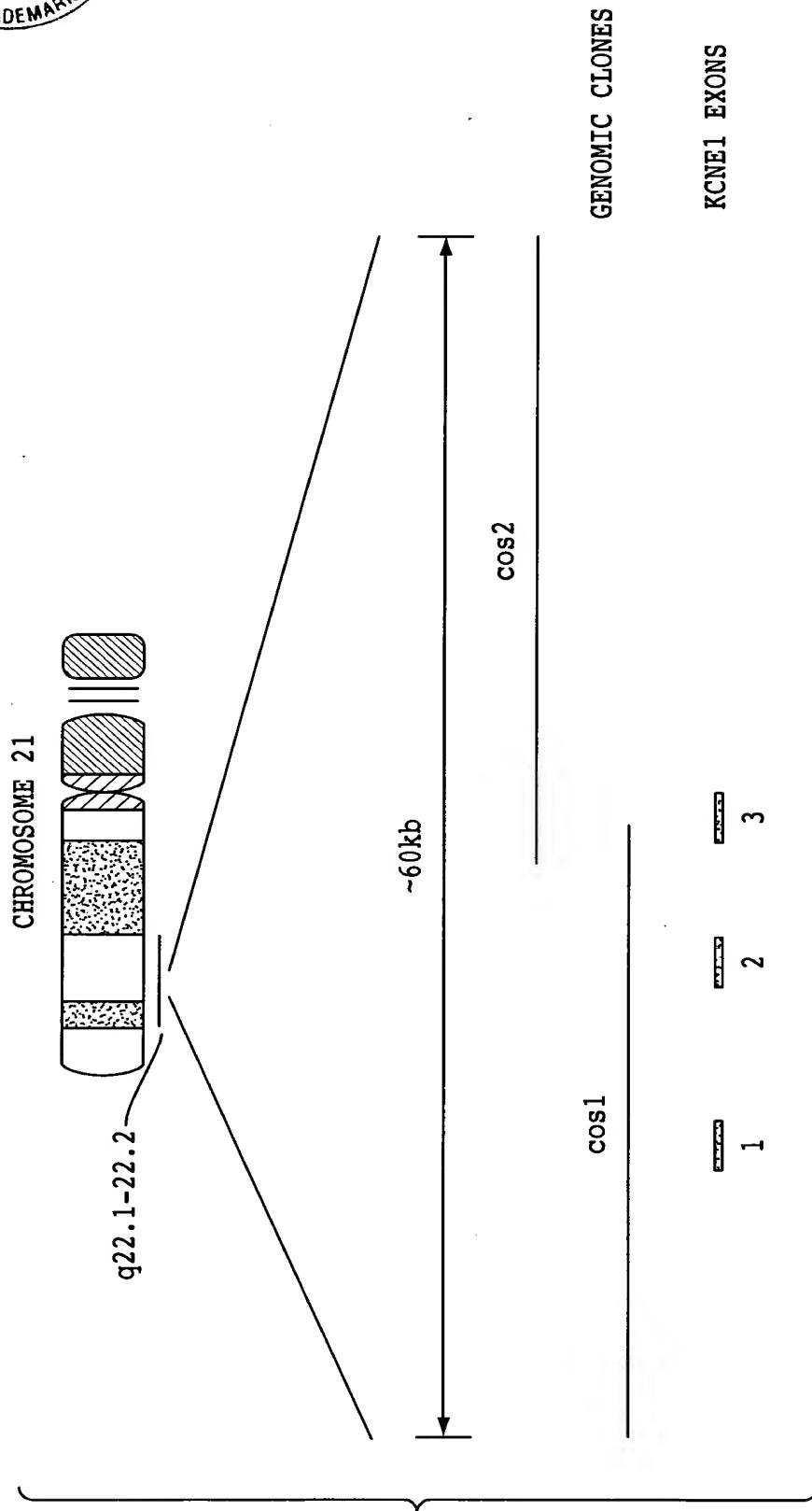


FIG. 17



KVLQT1 - A Long QT Syndrome Gene
Mark T. KEATING et al. - Atty Ref. 2323-151
SN 09/597,732, filed 19 June 2000

ACACCCGGCTCTCGGCATCTCAGACCCGGAAAAATCCCTCTGCTTCTGGCCAGTTACACAATCATCAGGTGAG-81
CCGAGGATCCATTGGAGGAAGGCATTATCTGTATCCAGAGGAAATAGCCAAGGGATATTCAAGGGTGTGCCCTGGGAAGTTG-162
AGCTGCAGCAGTGGAACCTTAATGCCAGGATGATCCTGTCTAACACACAGCGGTGACGCCCTTCTGACCAAGCTGTGG-243
M I L S N T T A V T P F L T K L W -17
CAGGAGACAGTCAGCAGGGTGGCAACATGTCGGGCCTGGCCCGCAGGTCCCCCGCAGCGGTGACGCCAAGCTGGAGGCC-324
O E T V O O G G N M S G L A R R S P R S G D G K L E A -44
CTCTACGTCCCTATGGTACTGGGATTCTCGGCTTCTCACCCCTGGGCATCATGCTGAGCTACATCCGCTCCAAGAACGCTG-405
L Y V L M V L G F F G F F T L G I M L S Y I R S K K L -71
GAGCACTCGAACGACCCATTCAACGTCTACATCGAGTCCGATGCCCTGCAAGAGAACAGGCCTATGTCAGGCCGG-486
E H S N D P F N V Y I E S D A W Q E K D K A Y V Q A R -98
GTCCTGGAGAGCTACAGGTCGTGCTATGTCGTTGAAAACCATCTGGGCATAGAACACACACACCTCCTGAGACG-567
V L E S Y R S C Y V V E N H L A I E Q P N T H L P E T -125
AAGCCTTCCCCATGAACCCACCACTGGCTAACTGGACACCTCTGCTGGNNNNAGATTTCTAATCACATTCTCA-648
K P S P * -1702
TACTCTTATTGTGATGGATACCACTGGATTCTTTGGCTGTTGTAANGGTGAGGGTGGATTAATGACACTGTTCA-729
CTGTTCTCTAAATCACGTTCTTGATAGACTGTCAGTGGTTCCCCATCTGTCCTGCTTGCTAAATTAGCA-810
GAATCCCTGAGGACATGGCTCTGAGAATAGCAGCTGCATTCCAGACTCCCTGCAAGCTAGCAAGGTTGTGACTAAG-891
CCCTGGCAGTAGGCATGGAAGTGAAGACTGTAATGTCAGTAATCTTGGAAAGAAAAGAACGTCGCCCTAACCTAAC-972
TGTCTGCTTCCAGTGGCTGGATGTGGAGGGAGGTGGAGAGCAGTTATGAGACTGGGAAGTTGGGGCACTCAAAGAGCC-1053
ACACACATCTGGCCCTGGGCACGTGGATCCCTTACACACCCACCCAGGGCAGATTACAGGAAGAGAAAATCCACTCCAC-1134
TCTTCCTTAAGCCACTGTTATCTGATCTGTTAAGGTGCGAGAATCAATGCCCTTACTGATACACCTAACCTTATAGGAC-1215
TGAACCTAAAGGCATGACATTCCATACTTGTCAACAGCACACACTGATTCTGCCCTGTCACCTCTGTGCTCACTCTG-1269
GGCTCTATCCTCCTGCCCTTCCGCTTCACTCCTGCCCTGACACATCTCCCTGAAACACACAGG-1377
CACATACACTCATATAACATAGACACACATACACACCTCAATCTAGAAAGAACCTGTTGTCAGGGCTGAGATGGAGGAG-1458
AAAAAAATGCCCTTCAGAATGCATACCAAGGGGAAGGTGCTCGGTCACTGTGGAGCAGGGAAAGGTGCCCTTCACTCCC-1539
CGAGAGCCAGGGGAAGGGAGTGGCTCTGGCAGAGAGGGACACATAGCACTGGGGTGGCAGGTCTTTGAGGTGATGGGCC-1620
GGTTTGTGAGATGAATTGTATCCCCAAAAAGACAGGTACCTCAATGTGACCTAATTGGAAATAGAGTCTTGAGAT-1701
G(A)n -1702

FIG. 18